



## METHOD OF REFLECTING TIME/LANGUAGE DISTORTION IN OBJECTIVE SPEECH QUALITY ASSESSMENT

### Field of the Invention

5 The present invention relates generally to communications systems and, in particular, to speech quality assessment.

### Background of the Related Art

Performance of a wireless communication system can be measured, among other things, in terms of speech quality. In the current art, there are two techniques of speech quality assessment. The first technique is a subjective technique (hereinafter referred to as "subjective speech quality assessment"). In subjective speech quality assessment, human listeners are typically used to rate the speech quality of processed speech, wherein processed speech is a transmitted speech signal which has

15 been processed at the receiver. This technique is subjective because it is based on the perception of the individual human, and human assessment of speech quality by native listeners, i.e., people that speak the language of the speech material being presented or listened, typically takes into account language effects. Studies have shown that a listener's knowledge of language affects the scores in subjective listening tests. Scores

20 given by native listeners were lower in subjective listening tests compared to scores given by non-native listeners when language information in speech is defect, i.e., mute. In a normal telephone conversation, the listener is often a native listener. Thus, it is preferable to use native listeners for subjective speech quality assessment in order to emulate typical conditions. Subjective speech quality assessment techniques provide a

25 good assessment of speech quality but can be expensive and time consuming.

The second technique is an objective technique (hereinafter referred to as "objective speech quality assessment"). Objective speech quality assessment is not based on the perception of the individual human. Some objective speech quality assessment techniques are based on known source speech or reconstructed source speech estimated

30 from processed speech. Other objective speech quality assessment techniques are not based on known source speech but on processed speech only. These latter techniques are